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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference CDT 1890 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/26153	International filing date (day/month/year) 21 August 2003 (21.08.2003)	Priority date (day/month/year) 22 August 2002 (22.08.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): C07C 5/03 and US Cl.: 585/275		
Applicant CATALYTIC DISTILLATION TECHNOLOGIES		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 3 sheets, including this cover sheet.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of ___ sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 23 April 2004 (23.04.2004)	Date of completion of this report 20 February 2005 (20.02.2005)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Glenn Caldarola Telephone No. 571-272-1700 DEBORAH A. THOMAS PARALEGAL SPECIALIST GROUP 1300 <i>PUT</i>

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US03/26153

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed.
- ☒ the description:
 pages 1-20 as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☒ the claims:
 pages 21 and 22, as originally filed
 pages NONE, as amended (together with any statement) under Article 19
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☒ the drawings:
 pages 1, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☐ the sequence listing part of the description:
 pages NONE, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/26153

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>1-12</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-12</u>	NO
Industrial Applicability (IA)	Claims <u>1-12</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-13 lack an inventive step under PCT Article 33(3) as being obvious over Luebke (5,449,501).

Luebke disclose totally hydrogenating hydrocarbon olefins in a catalyst distillation column reactor (the abstract; col. 2, line 39).

Luebke does not disclose that a feedstock containing a plurality of different unsaturated olefins (see the entire patent for details). However, as taught by Luebke, one having ordinary skill in the art at the time of the invention was made who wishes to hydrogenate a mixture of olefins would use the Luebke process for hydrogenating such a mixture of olefins since Luebke teaches that his process can be use to totally hydrogenate olefinic hydrocarbons.

Regarding claims 2 and 3, it is expected that the Luebke process can be used to hydrogenate any feedstock having any concentration of olefins as taught by Luebke.

Regarding claims 4 and 5, if there is any amount of unhydrogenated hydrocarbons, these unreacted components should be recovered for recycle.

The conversion as claims 6 depends on the selected chemical reaction parameters such as temperatures and pressures which must be selected to optimize the process as called for in claims 7, 8, 12, and 13.

Regarding claims 9-11, any feedstock is expected to yield similar results provided that the feedstock contain olefinic hydrocarbons.

Claims 1-13 has an industrial applicability as defined by PCT Article 33(4). The claimed process can be used for producing paraffins.

----- NEW CITATIONS -----